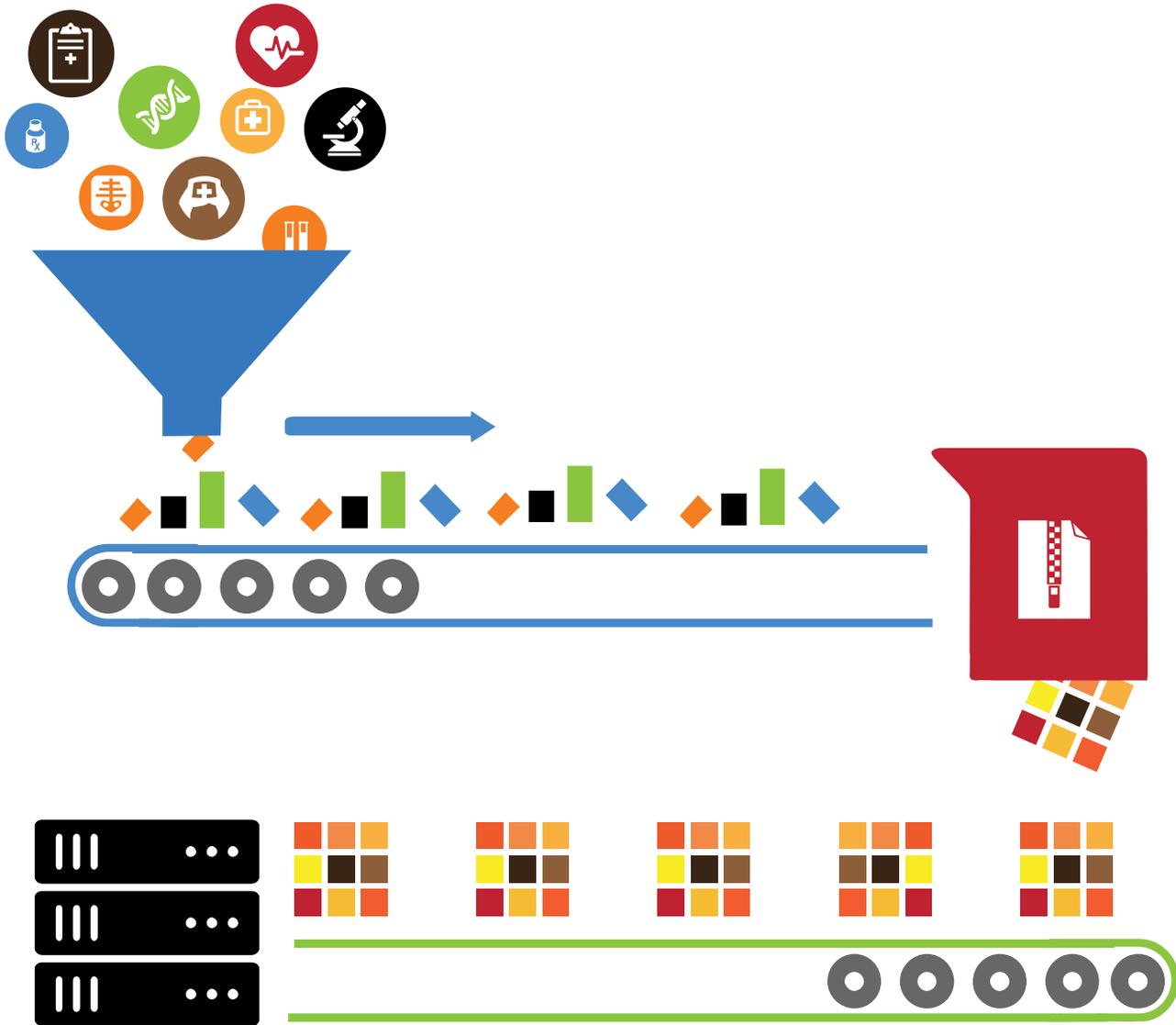


HOW TO ACHIEVE COST EFFICIENCY BY ARCHIVING HEALTHCARE DATA AND APPLICATIONS

A Scalable Health Whitepaper



EXECUTIVE SUMMARY

Data archiving solutions help healthcare organizations easily archive structured and unstructured data in such a way that clinicians and physicians may access it whenever needed. Using medical data archive, doctors can make better clinical decisions by having access to the full medical history of their patients. Advances in diagnostic technology and increasing popularity of digital medical images have resulted in several heterogeneous systems that now store vast amounts of structured and unstructured data across the enterprise in Electronic Health Records (EHRs), Electronic Medical Records (EMRs) and other healthcare application systems.

Disparate data results in organizations faced with significant challenges when implementing processes to manage this growth while also satisfying regulatory compliance requirements and protecting the privacy of patient data. Additionally, providers must meet these escalating needs while faced with spiraling storage, infrastructure and application costs.

A medical record archive solution simplifies the procedures for data archiving, backup and recovery per mandated regulatory requirements. Now, healthcare organizations can store low-priority data on less expensive storage and ensure that recent information is easily available. Medical record archiving improves utilization, lower costs and reduces demands on IT. It incorporates best practices for storage and backup of EMRs, medical images and all other types of digital information across the healthcare industry.

This white paper discusses an effective data archiving strategy that will allow healthcare providers to maximize storage utilization and realize the full benefits of digital technology while keeping IT costs under control.



INTRODUCTION

As healthcare organizations face increasing data retention and control requirements, they are realizing the business value of patients’ historical medical data. This rapid progression of healthcare IT demands has created a challenging environment for the use of medical data archiving today. Managing these changing IT requirements can be expensive and inefficient. By archiving the patient database, healthcare organizations can better manage data growth and costs while focusing on medical innovation.

Valuable patient information can be mined from the historical data store. However, failure to maintain appropriate data tracking and retention can be expensive. Non-compliance could lead to fine, loss of investor confidence and reputation. It is clear that healthcare organizations need reliable methods to archive transactional data as their databases continue to grow exponentially before they become unmanageable. The focus of archiving begins when the patient is initially diagnosed and continues throughout their continuum of care. Hospitals often resort to expensive outsourcing to ensure quality patient data for better treatment and outcome.

IntelliMRA is Scalable Systems’ enterprise-wide data archiving and management solution that is designed to meet evolving healthcare data growth. With access to current and archived data, IntelliMRA allows you to manage application data growth across your enterprise while controlling the cost of data growth.

By overcoming the limitations of the current storage approach to the historical data management, IntelliMRA can provide healthcare organizations with a centralized and well-organized solution to meet their historical data management needs.

Biggest Contributor to the Growth in Data

Percent	Under 150 beds	150-500 beds	500+ Beds	All Respondents
EHR/EMR implementation	76%	40%	33%	63%
Increased use of imaging technology	16%	48%	50%	28%
New data types (digital pathology, genomics, etc.)	2%	5%	8%	3%
Our data storage need have not grown or remain the same from the previous year	3%	0%	0%	2%
Increased patient population	1%	0%	0%	1%
Scanning	1%	5%	0%	2%

WHY DATA ARCHIVING IS IMPORTANT NOW FOR MANY HEALTHCARE ORGANIZATIONS

Data storage is moving to the cloud for greater manageability and cost savings. The challenge that remains is that often this results in disparate data sources - where some data may reside in-house and some data moves to the cloud. In view of this discrepancy, healthcare organizations must consider whether their current data management plan includes a strategy to address resolving data issues when shifting to a cloud-based solution.

Under continuing US healthcare reforms, IT initiatives have deadlines and specific requirements: Accountable Care Organization participation, meaningful use, ICD-10, health information exchange and the on-going system upgrades in the technology and underlying infrastructure.

Industry consolidation projects involve system integrations with acquired hospitals and physician groups. These are the part of an organization's overall roadmap; the IT staff must ensure that it is fully prepared to deliver and successfully support these integrated systems and their users.

Data Capacity: Hospitals gather and utilize gigantic volumes of information consistently, which results in data security and integrity issues. Moreover, healthcare IT data archiving needs are skyrocketing. Solution providers propose a mixed bag of choices to consider. IT administrators must be skilled to identify the most appropriate archiving solution and identify vendors with the capability of executing without endangering data integrity. Cross-breed data archiving - the ability to process new types of enterprise data including social, IoT, machine data, etc. - is an example of a potential solution that may be considered. Business value is located across the enterprise in all new types of data and failure to evolve into a data-driven organization brings the risk of business disruption from competitors and startups.

Data Archiving: To oversee application information development throughout the healthcare organization, IT personnel can enhance application administration levels, moderate the dangers and control costs by streamlining databases and improving communication between disparate systems.

Security: Data security demands have become more stringent because of HIPAA rules requiring meaningful use standards - standards for using electronic health records (EHR) and for exchanging patient clinical data between healthcare providers, between healthcare providers and insurers, and between healthcare providers and patients. Compliance isn't the only driver. With the recent governmental document leaks and Target's credit card data breach, lax data security is becoming a serious issue for IT executives.

In healthcare, the risks are higher with the millions of stored records, and any security breach can result in significant HIPAA violations and impacts on the healthcare system. Security experts are seeing an increase in audit requests by hospitals to evaluate and implement further safeguards to improve their security systems.

NEED OF DATA ARCHIVING

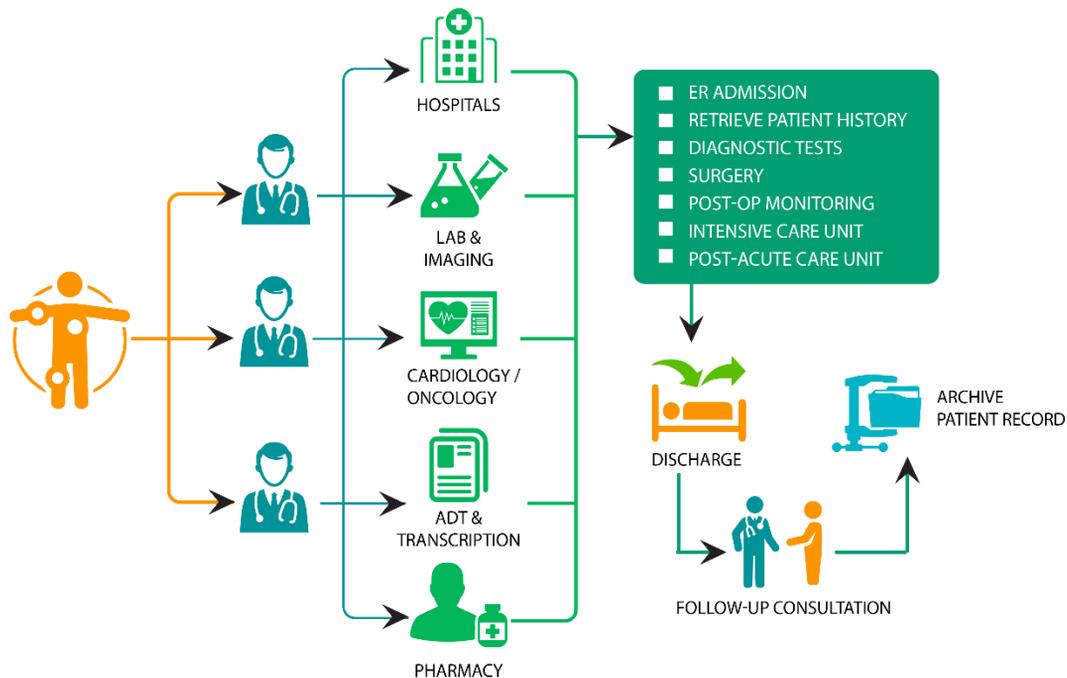
Organizations create terabytes of data every year. Healthcare, in particular, amasses data in the form of lab results, medical illustrations and images related to patient records. Most states have requirements that covered entities retain electronic Protected Health Information (ePHI) for a certain period, even if the covered entity closes its doors. For example, the most common case of a covered entity closing is a physician retiring. In addition to local state laws, HIPAA requires providers to store the details and other information for the life of the patient and beyond.

As innovative medical advances continue, so do the supporting data needs. Timely access to historical patient data can facilitate care choices, improve the patient experience and outcomes, and lead to shorter patient stays. According to the American Hospital Association, 33% of U.S. healthcare centers operate in the red due to inefficiencies in the openness of data that would allow them to bolster patient outcomes.

For example, today, many doctors still physically compose requests and request data from various offices inside and outside their health awareness association. These solicitations can take hours to days to fulfill due to the recovery time required for documented data. In addition, healthcare facility staff manually copy and record patient related information numerous times on different forms, which further adds to rising healthcare costs and increases the risk of human error. By moving manual and paper-based methods to the web, human service providers will increase operational efficiencies, reduce costs, and result in better patient outcomes.

Moreover, state and federal laws and regulations mandate the need for a better way to deal with data management. In the United States, government regulations mandate the doctor's facilities to hold patient records for the life of a patient and beyond, while HIPAA requires associations to execute business continuity plans to secure patient data. As appropriation of the Electronic Health Record (EHR) expands, many European countries are reviewing the rules to ensure tolerant data and security. Fault-tolerant data delivers uninterrupted service, despite one or more of its components failing. Fault tolerance also resolves potential service interruptions related to software or logic errors. The purpose is to prevent a catastrophic failure that could result from a single point of failure. As healthcare associations plan for business continuity, they have to consider electronic transaction rules for persistent referrals, protection qualification, charging, and exchange codes; privacy rules to secure secrecy of patient rights and healthcare data; and security rules for physical, managerial, and specialized shields of healthcare data. Hence, healthcare organizations must execute strategies and frameworks that defend data over its whole life-cycle to guarantee usability.

Therefore, healthcare data archiving must be a key part of an association's IT methodology. In considering an information strategy, experts in healthcare IT must look at a variety of options to secure the best options to meet the data demands of the organization. In response to Health Information Technology specifically for the Economic and Clinical Health (HI-TECH) Act's progressions to HIPAA, the primary consideration should always be the security and usability of the stored data. Usability is defined as presenting the right data to the right person at the right time to improve care outcomes.



The data in the healthcare landscape keeps on changing. Today, the upsurge in the volume of digital information that hospitals generate brings some very real challenges for IT organizations in relation to how they can successfully and cost effectively manage, secure and protect that data, both now and in the future.

The development of information in healthcare, in itself, is no astonishment you could be pardoned for not hailing the compass of the information blast: there are no signs of this slowing down in the times to come. So why there is an obstacle of having as well as managing these large amount of healthcare data suddenly coming to light and getting noticed?

Healthcare organizations are realizing the business value that can be extracted from the patient historical data. Managing the patient data is the realm of the medical database administrator. All patient data need to be archived for following reasons:

- **Regulatory compliance:** Many healthcare organizations consider retaining and retrieving medical information enables to address regulatory concerns and risks. Some regulations state long-term retention obligation place a significant load on organizations attempting to comply.
- **Managing data growth:** Hospital databases are becoming primary repositories for critical enterprise data and are growing at 50 % to 100% annually. It demands a medical database repository for managing such databases.
- **Application Performance:** One of the most critical drivers for medical database archiving is application performance. Generally, 50% or more of the patient data residing in medical databases is inactive or historical. Yet when database searches are performed, this inactive data is processed and combined through along with current data that results in a significantly slower application response.

CHALLENGES DATA ARCHIVE MUST ADDRESS

Technology is not a challenge for medical data archiving. Rather, coming to an agreement on what to achieve and how to establish proper policies for medical archive data is a huge obstacle.

Consolidating islands of storage

Healthcare providers have numerous specialized archiving systems. These systems increase acquisition and maintenance costs, while making it difficult to share information on patient. Replacing all of these systems is not financially feasible, but establishing a standards-based system repository will enable consolidation of medical data.

Provide centralized access to varied patient data

In most healthcare systems, images may be located and accessed through departmental PACS systems (cardiology, radiology, and others) while patient documents such as EMR data, lab reports, video files, JPEG images other content are stored in other clinical departmental applications. Clinicians face difficulty to access patient data scattered across the enterprise.

Information Lifecycle management diverts storage space

Information lifecycle management is an important asset for the healthcare system. This management process automatically archives clinical records that no longer need to be stored and allows that space to be reused. This optimizes the return-on-investment for the medical data storage infrastructure.

Industry restructuring creates large-scale consolidations

The healthcare industry is restructuring through mergers, large private consortium and national and regional repositories for medical information exchange. This leads to need for large-scale archiving solutions capable of delivering patient-centric data access to multiple facilities and locations.

Creating a single patient portfolio

Collecting medical information on patient does not automatically improve access. Achieving more efficient access requires an intelligent platform that can recognize relationships between documents and systems and then consolidate information related to each patient into a single portfolio. This patient portfolio contains documents from multiple specialties, created in different formats and acquired using multiple protocols.

BUILDING A HEALTHCARE DATA ARCHIVE ARCHITECTURE

Many healthcare archive architecture functions are underweight because they are over-concerned, over-burdened, or merely fixated with governance for the creation of new business opportunities. As architecture provides a blueprint for putting up a building, similarly healthcare archive architecture provides a roadmap for aligning clinician and physicians with required patient data.

In order to be successful, archive architecture needs to be woven into the healthcare's requirements. The value of medical record archive architecture is greatly enhanced when it is embedded into the lifecycle of the organization including project management, capital planning, resource allocation and asset management. Healthcare archive architecture evolves over time and needs to maintain the flexibility required to adjust towards strategy shifts, marketing conditions and new innovations in technology. Medical record AA frameworks have emerged to manage the increasingly complexity of innovation and change.

It is an on-going communication among IT leadership and business as it is about architectural choices and technology innovations. Archive architecture facilitates IT leadership and business with structure, common process and language. Utilizing a medical record Archive Architecture framework streamlines the process for preparing and maintaining architectures at all levels (e.g. functional business segment architectures, cross-cutting technology domain architectures, enterprise architectures, and solution architectures) and enables a healthcare organization to leverage the value of architecture best practices.

Steps for creating medical record archive architecture:

1. Identify medical application information management requirement: Application owners and healthcare IT support staff need to understand each medical application's requirements and what service IT is providing to meet that requirements. And once they are defined, the archiving policies need to be established to support them.
2. Identify information components: Classify the key components that make up a set of information of the application information management.
3. Categorize compliance requirements: These include how long patient data can be kept before purging and how quickly data needs to be presented back into the systems. These requirements are set by the Government to access those data.
4. Identify the business value of information over time: All medical databases are created equally but over time they lose their business value. Thus, it is essential to identify the information's business value over time.
5. Prepare archive policies: Establish the archive policies for application data based on organizational and Regulatory requirements.
6. Establish enterprise storage architecture technology: Enterprise storage architecture technology can be designed by identifying the hardware and backup requirements, archiving capabilities and ultimately data deletion.

Data Growth Analyzer Identifies which legacy application entities should be archived



Data Archive relocates Legacy Database to an open standards, accessible structured data archive



Data Archive & Retirement Engine



Structured Data Archive is stored in Content Platform and is accessible via preferred access methods

ODBC/JDBC,
Native App Inter-
faces, BI/Reporting
Tool, etc



Content Platform



Structured / Unstructured
Data Archive



Data Discovery Interface



BENEFITS OF MEDICAL RECORD DATA ARCHIVE

- **Facilitates information retention**

Medical Data archiving assists healthcare providers, from imaging clinics to hospitals, in making a medical archival storage solution to meet long-term information retention and access requirements. It helps to centrally store and manage medical fixed content, including images and electronic patient documents. HCOs can handle large medical objects and smaller documents from multiple data sources.

- **Access the data when and how you need it**

Healthcare organizations need access to patient historical data to build decisions, run reports and respond to surveys. Accessing and reporting on historical information takes less time and effort with the many available methods to access. Data archiving maintains information in an immutable format on a secure Write-Once, Read-Many device (WORM) which protects data for regulatory compliance. This can save clinicians valuable time and expedite a diagnosis. Physicians within a hospital or across a group of hospitals can have easy access to complete patient information and share files when collaborating on a patient's treatment.

- **Control storage costs**

Healthcare providers do not need to store everything on the same type of storage system and they do not have to worry about moving data to more cost efficient media types during an image or records lifecycle. Through data archiving solutions, healthcare organizations can avail fast and ubiquitous access to available information at right time. This provides integrity of production and archive data at all times, through native database support.

- **Long-term compliance and standard-based data access**

The archiving of medical data gives HCOs a soaring level of performance, and helps to maintain compliance. HCOs leveraging data archiving can apply suitable and secure methods for compliance and governance to improve visibility, better management of data retention and defensible disposal.

- **Gain data insight and accelerate implementation with discovery**

Successful projects start with accurate representation of information that is needed to be archived. Medical data archiving provides a full range of data analysis capabilities to capture these hidden correlations and bring them clearly into view. Healthcare organizations can leverage archiving solutions to ensure accuracy and completeness, and to speed the successful implementation of data archiving projects.

CONCLUSION

Challenged by the growth in variety and volume of information, archiving has become a crucial IT activity. Having a well-designed medical data archiving strategy in place, healthcare organizations need not be victims to compliance challenges, rising costs and legal risk. In the current changing environment driven by strict regulation, ensuring the availability, retention, and the access to patient data needs to be cost-effectively and reliably, which continues to increase the importance of enterprise archive solutions.

An effective archiving strategy will help organizations manage, retain, protect and utilize their medical information assets effectively by harnessing storage and application intelligence to determine the value of information at the level of the data item. By implementing a standardized and integrated storage infrastructure, healthcare organizations can achieve these objectives and thereby control costs, streamline patient care, reduce medical error and increase efficiency.

SCALABLE ADVANTAGE

Our Medical Record Archive solution on Data Archive platform delivers diverse solutions in a single deployment: live archive and application retirement. In doing so, hospital IT departments can not only quickly address the information management, security, compliance issues that have been outlined, but also provide a future-proof strategy for the healthcare data need of tomorrow.

SOME OF THE KEY FEATURES ARE:

- Up to 98%+ data footprint reduction capabilities.
- Online query access through open standards: Open Database Connectivity (ODBC) or Java Database Connectivity (JDBC).
- Built-in data visualization and report creation to mimic legacy application screens.
- E-discovery API integration, keyword search and retention management support.
- Integrated metadata discovery, archive validation and compliance reporting.

Ultimately, this paper offers practical advice on how to utilize the strengths of Medical Record Archiving, in conjunction with traditional backup techniques, to assist in eliminating storage silos, optimizing storage assets, enabling data interoperability, ensuring full data protection and providing a rapid return on investment – all in a bid to put the healthcare IT professional back in control of their data and storage.

Get in touch today to find out how you can transform the efficiency and cost-effectiveness of the infrastructure supporting your medical record archives.

visit <http://scalablehealth.com/intellimra.aspx> to learn more.

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